In the Claims

We claim:

Claims 1-49 (Cancelled)

Claim 50 (New): A composition of matter comprising:

a) an isolated polypeptide selected from the group consisting of:

1) an amino acid sequence selected from the group consisting of SEQ ID NO:2 (alternative mature INSP163), SEQ ID NO:34 (mature INSP163), SEQ ID NO:4 (INSP163-A), SEQ ID NO:6 (INSP163-B), SEQ ID NO:8 (INSP163-C), SEQ ID NO:10 (INSP163-D), SEQ ID NO:12 (INSP163-E), and SEQ ID NO:14 (INSP163-F);

2) a fragment of said amino acid sequence which functions as a biologically active polypeptide and/or has an antigenic determinant in common with a polypeptide according to 1);

3) a functional equivalent of 1) or 2);

4) the functional equivalent of 3), wherein the functional equivalent is homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, and SEQ ID NO:8, and is a C1q and collagen domain containing polypeptide;

5) the functional equivalent of 3), wherein the functional equivalent is homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, and is a C1q domain containing polypeptide;

6) the functional equivalent of 3), wherein the functional equivalent has greater than 50% sequence identity with an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

7) the functional equivalent of 3), wherein the functional equivalent has greater than 95% sequence identity with the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

8) the functional equivalent of 3), wherein the functional equivalent has greater than 50% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

9) the functional equivalent of 3), wherein the functional equivalent has greater than 95% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

10) the functional equivalent of 3), wherein the functional equivalent exhibits significant structural homology with a polypeptide having the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14;

11) the fragment of 2), wherein the fragment has greater than 50% sequence identity with an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

12) the fragment of 2), wherein the fragment has greater than 95% sequence identity with the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

13) the fragment of 2), wherein the fragment has greater than 50% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

14) the fragment of 2), wherein the fragment has greater than 95% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

15) the fragment of 2), wherein the fragment has an antigenic determinant in common with the polypeptide of 1), and wherein the fragment consists of 7 or more amino acid residues from the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14;

16) a fusion protein comprising any of a1) to a15);

17) the fusion protein of 16), further comprising a histidine tag;

18) the fusion protein of 17), whose sequence is recited in SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:26, SEQ ID NO:36, and SEQ ID NO:28;

19) the polypeptide of any one of 1) to 18), further comprising a signal peptide; and

20) the polypeptide of 19), whose sequence is recited in SEQ ID NO:30 or SEQ ID NO:32;

or

b) a purified nucleic acid molecule:

1) comprising a nucleic acid sequence encoding a polypeptide of any one of a1) to a20); or

2) comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

3) consisting of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

4) consisting of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31, or is a redundant equivalent or fragment thereof; or

5) that hybridizes under high stringency conditions with a nucleic acid molecule of any of b1) to b4); or

c) a vector comprising a nucleic acid molecule according to any one of b1) to b5); or

d) a host cell transformed with a vector or a nucleic acid molecule according to any one of b) or c); or

e) a ligand:

1) that binds specifically to the polypeptide of any of a1) to a20); or

2) which is an antibody that binds specifically to the polypeptide of any of a1) to a20); or

f) a compound:

1) that increases the level of expression or activity of a polypeptide according to any of a1) to a20); or

2) that decreases the level of expression or activity of a polypeptide according to any of a1) to a20); or

g) a compound that binds to a polypeptide according to any of a1) to a20) without inducing any of the biological effects of the polypeptide; or

h) a compound that binds to a polypeptide according to any of a1) to a20) without inducing any of the biological effects of the polypeptide, wherein the compound is a natural or modified substrate, ligand, enzyme, receptor or structural or functional mimetic; or

i) a pharmaceutical composition comprising any one of a) to h), and a pharmaceutically acceptable carrier; or

j) a vaccine composition comprising any one of a1) to a20) or b1) to b5); or

k) a kit for diagnosing disease, comprising a first container containing a nucleic acid probe that hybridizes under stringent conditions with a nucleic acid molecule of any one of b1) to b5), a second container containing primers useful for amplifying the nucleic acid molecule, and instructions for using the probe and primers for facilitating the diagnosis of disease; or

l) a kit for diagnosing disease, comprising a first container containing a nucleic acid probe that hybridizes under stringent conditions with a nucleic acid molecule of any one of b1) to b5); a second container containing primers useful for amplifying the nucleic acid molecule; a third container holding an agent for digesting unhybridized RNA; and instructions for using the probe and primers for facilitating the diagnosis of disease; or

m) a kit comprising an array of nucleic acid molecules, at least one of which is a nucleic acid molecule according to any one of b1) to b5); or

n) a kit comprising one or more antibodies that bind to a polypeptide as recited in any one of a1) to a20); and a reagent useful for the detection of a binding reaction between the one or more antibodies and the polypeptide; or

o) a transgenic or knockout non-human animal that has been transformed to express higher, lower, or absent levels of a polypeptide according to any one of a1) to a20).

Claim 51 (New): A method of using a composition of matter, comprising obtaining a composition of matter according to claim 50 and using said composition of matter in a method

selected from the group consisting of: diagnosing a disease in a patient; treatment of a disease in a patient; monitoring the therapeutic treatment of a disease; identification of a compound that is effective in the treatment and/or diagnosis of a disease; and screening candidate compounds.

Claim 52 (New): The method of claim 50, wherein said method of using a composition of matter comprises the method for treatment of a disease, comprising administering to the patient:

a) an isolated polypeptide selected from the group consisting of:

1) an amino acid sequence selected from the group consisting of SEQ ID NO:2 (alternative mature INSP163), SEQ ID NO:34 (mature INSP163), SEQ ID NO:4 (INSP163-A), SEQ ID NO:6 (INSP163-B), SEQ ID NO:8 (INSP163-C), SEQ ID NO:10 (INSP163-D), SEQ ID NO:12 (INSP163-E), and SEQ ID NO:14 (INSP163-F);

2) a fragment of said amino acid sequence which functions as a biologically active polypeptide and/or has an antigenic determinant in common with a polypeptide according to 1);

3) a functional equivalent of 1) or 2);

4) the functional equivalent of 3), wherein the functional equivalent is homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, and SEQ ID NO:8, and is a C1q and collagen domain containing polypeptide;

5) the functional equivalent of 3), wherein the functional equivalent is homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, and is a C1q domain containing polypeptide;

6) the functional equivalent of 3), wherein the functional equivalent has greater than 50% sequence identity with an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

7) the functional equivalent of 3), wherein the functional equivalent has greater than 95% sequence identity with the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

8) the functional equivalent of 3), wherein the functional equivalent has greater than 50% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

9) the functional equivalent of 3), wherein the functional equivalent has greater than 95% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

10) the functional equivalent of 3), wherein the functional equivalent exhibits significant structural homology with a polypeptide having the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14;

11) the fragment of 2), wherein the fragment has greater than 50% sequence identity with an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

12) the fragment of 2), wherein the fragment has greater than 95% sequence identity with the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

13) the fragment of 2), wherein the fragment has greater than 50% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

14) the fragment of 2), wherein the fragment has greater than 95% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

15) the fragment of 2), wherein the fragment has an antigenic determinant in common with the polypeptide of 1), and wherein the fragment consists of 7 or more amino acid residues from the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14;

16) a fusion protein comprising any of a1) to a15);

17) the fusion protein of 16), further comprising a histidine tag;

18) the fusion protein of 17), whose sequence is recited in SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:26, SEQ ID NO:36, and SEQ ID NO:28;

19) the polypeptide of any one of 1) to 18), further comprising a signal peptide; and

20) the polypeptide of 19), whose sequence is recited in SEQ ID NO:30 or SEQ ID NO:32; or

b) a purified nucleic acid molecule:

1) comprising a nucleic acid sequence encoding a polypeptide of any one of a1) to a20); or

2) comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

3) consisting of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

4) consisting of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31, or is a redundant equivalent or fragment thereof; or

5) that hybridizes under high stringency conditions with a nucleic acid molecule of any of b1) to b4); or

c) a vector comprising a nucleic acid molecule according to any one of b1) to b5); or

d) a host cell transformed with a vector or a nucleic acid molecule according to any one of b) or c); or

e) a ligand:

1) that binds specifically to the polypeptide of any of a1) to a20); or

2) which is an antibody that binds specifically to the polypeptide of any of a1) to a20); or

f) a compound:

1) that increases the level of expression or activity of a polypeptide according to any of a1) to a20); or

2) that decreases the level of expression or activity of a polypeptide according to any of a1) to a20); or

g) a compound that binds to a polypeptide according to any of a1) to a20) without inducing any of the biological effects of the polypeptide; or

h) a compound that binds to a polypeptide according to any of a1) to a20) without inducing any of the biological effects of the polypeptide, wherein the compound is a natural or modified substrate, ligand, enzyme, receptor or structural or functional mimetic; or

i) a pharmaceutical composition comprising any one of a) to h), and a pharmaceutically acceptable carrier.

Claim 53 (New): The method of claim 52, wherein the disease includes one or more of among an autoimmune disease, autoimmune inner ear disease, Labyrinthitis, Ménière disease and Ménière syndrome, Perilymphatic or labyrinthine fistula, Tinnitus, neurodegenerative diseases, amyloidosis, Alzheimer's disease, Parkinson's disease, familial dementia, inflammation (joint pain, swelling, anemia, or septic shock), infectious diseases, parasitic diseases, microbial diseases, bacterial diseases, viral diseases (HIV, HTLV, MuLV, *Streptococcus pneumoniae* and *Ascaris lumbricoides* infections), glomerulonephritis, obesity, diabetes, diabetes mellitus, Schmid metaphyseal chondrodysplasia, corneal endothelial dystrophies, posterior polymorphous corneal dystrophy (PPCD), Fuchs endothelial corneal dystrophy (FECD), atherosclerosis, scurvy, cancer, gastrointestinal stromal tumor, osteosarcoma, chondroblastoma, giant cell tumor, spondylometaphyseal dysplasia Japanese type (SMD), lymphomas (Non-Hodgkin's lymphoma (NHL), follicular lymphomas, Burkitt's lymphoma, mantle cell lymphoma (MCL), multiple myeloma (MM), leukemia (chronic lymphocytic leukemia/small lymphocity lymphoma (CLL/SLL)), diffuse large cell B cell lymphoma (DLCL), B cell hyperplasia, Osteogenesis Imperfecta, Ehlers-Danlos syndrome, susceptibility to dissection of cervical arteries, aortic aneurysm, otospondylomegaepiphyseal dysplasia, hearing loss (deafness), Weissenbacher-Zweymuller syndrome, bone or skeletal disease, late-onset retinal degeneration (L-ORD), age-related macular degeneration (AMD), blindness, arthritis, rheumatoid arthritis (RA), osteoarthritis, lyme arthritis, juvenile chronic arthritis, spondyloarthropathies, Systemic lupus erythematosus (SLE), Sjögren syndrome, demyelinating diseases of the central and peripheral

nervous systems such as multiple sclerosis, idiopathic demyelinating polyneuropathy or Guillain-Barre syndrome, and chronic inflammatory demyelinating polyneuropathy, myasthenia gravis, bronchitis, emphysema, renal failure (glomerulonephritis, vasculitis, nephritis or pyrlonephritis), renal neoplasms, renal cell carcinomas, renal tumor, light chain neuropathy or amyloidosis, acute or chronic immune disease associated with organ transplantation, organ transplant rejection, graft-versus-host disease, Crohn's Disease, systemic sclerosis, idiopathic inflammatory myopathies, systemic vasculitis, sarcoidosis, autoimmune hemolytic anemia, autoimmune thrombocytopenia, thyroiditis, immune-mediated renal disease, hepatobiliary diseases such as infectious autoimmune chronic active hepatitis, primary biliary cirrhosis, granulomatous hepatitis, and sclerosing cholangitis, inflammatory bowel disease, gluten-sensitive enteropathy, and Whipple's disease, autoimmune or immune-mediated skin diseases including bullous skin diseases, erythema multiforme and contact dermatitis, psoriasis, atopic dermatitis, food hypersensitivity and urticaria, immunologic diseases of the lung such as eosinophilic pneumonias, idiopathic pulmonary fibrosis and hypersensitivity pneumonitis, ulcerative colitis, inflammatory bowel disease, allergic diseases such as asthma, allergic rhinitis, sarcoidosis, female infertility, autoimmune thrombocytopenia, autoimmune thyroid disease, Hashimoto's disease, Sjogren's syndrome, ectodermal dysplasia, X-linked hypohidrotic ectodermal dysplasia (HED), inflammatory, ischemic or neoplastic diseases of the adrenal cortex, adrenal tumor, ganglioneuroblastoma, neuroblastoma, phaeochromocytomas, corstisol-producing adrenocortical adenomas, diseases linked to spinocerebellar degeneration, cerebellar diseases, olivopontocerebellar atrophy (OPCA) and/or Shy-Drager syndrome.

Claim 54 (New): The method of claim 51, wherein the disease is one for which the expression of the natural gene or the activity of the polypeptide is lower in a diseased patient when compared to the level of expression or activity in a healthy patient, the polypeptide, nucleic acid molecule, vector, ligand, compound or composition administered to the patient is an agonist.

Claim 55 (New): The method of claim 52, wherein the disease is one for which expression of the natural gene or activity of the polypeptide is higher in a diseased patient when compared to the level of expression or activity in a healthy patient, the polypeptide, nucleic acid molecule, vector, ligand, compound or composition administered to the patient is an antagonist.

Claim 56 (New): The method of claim 51, wherein said method of using a composition of matter comprises the method for diagnosing a disease in a patient, comprising assessing the level of expression of a natural gene encoding a polypeptide, or assessing the activity of the polypeptide, in tissue from said patient; and comparing said level of expression or activity to a control level, wherein a level that is different to said control level is indicative of disease, and wherein the polypeptide:

a) is an amino acid sequence selected from the group consisting of SEQ ID NO:2 (alternative mature INSP163), SEQ ID NO:34 (mature INSP163), SEQ ID NO:4 (INSP163-A), SEQ ID NO:6 (INSP163-B), SEQ ID NO:8 (INSP163-C), SEQ ID NO:10 (INSP163-D), SEQ ID NO:12 (INSP163-E), and SEQ ID NO:14 (INSP163-F); or

b) is a fragment of said amino acid sequence which functions as a biologically active polypeptide and/or has an antigenic determinant in common with a polypeptide according to a); or

c) is a functional equivalent of a) or b); or

d) is the functional equivalent of c), wherein the functional equivalent is homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, and SEQ ID NO:8, and is a C1q and collagen domain containing polypeptide; or

e) is the functional equivalent of c), wherein the functional equivalent is homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, and is a C1q domain containing polypeptide; or

f) is the functional equivalent of c), wherein the functional equivalent has greater than 50% sequence identity with an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof; or

g) is the functional equivalent of c), wherein the functional equivalent has greater than 95% sequence identity with the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof; or

h) is the functional equivalent of c), wherein the functional equivalent has greater than 50% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof; or

i) is the functional equivalent of c), wherein the functional equivalent has greater than 95% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof; or

j) is the functional equivalent of c), wherein the functional equivalent exhibits significant structural homology with a polypeptide having the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14; or

k) is the fragment of b), wherein the fragment has greater than 50% sequence identity with an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof; or

l) is the fragment of b), wherein the fragment has greater than 95% sequence identity with the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof; or

m) is the fragment of b), wherein the fragment has greater than 50% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof; or

n) is the fragment of b), wherein the fragment has greater than 95% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof; or

o) is the fragment of b), wherein the fragment has an antigenic determinant in common with the polypeptide of a), and wherein the fragment consists of 7 or more amino acid residues from the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14; or

p) is a fusion protein comprising any of a) to o); or

q) is the fusion protein of p), further comprising a histidine tag; or

r) is the fusion protein of q), whose sequence is recited in SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:26, SEQ ID NO:36, and SEQ ID NO:28; or

s) is the polypeptide of any one of a) to r), further comprising a signal peptide; or

t) is the polypeptide of s), whose sequence is recited in SEQ ID NO:30 or SEQ ID NO:32.

Claim 57 (New): The method of claim 56, which is carried out *in vitro*.

Claim 58 (New): The method of claim 56, comprising:

a) contacting a ligand with a biological sample under conditions suitable for the formation of a ligand-polypeptide complex; and

b) detecting said complex, wherein the ligand binds specifically to the polypeptide of any of a) to t) of claim 56, or wherein the ligand is an antibody that binds specifically to the polypeptide of any of a) to t) of claim 56.

Claim 59 (New): The method of claim 56, comprising:

a) contacting a sample of tissue from the patient with a nucleic acid probe under stringent conditions that allow the formation of a hybrid complex between a nucleic acid molecule and the probe;

b) contacting a control sample with said probe under the same conditions used in step a); and

c) detecting the presence of hybrid complexes in said samples; wherein detection of levels of the hybrid complex in the patient sample that differ from levels of the hybrid complex in the control sample is indicative of disease, wherein the nucleic acid molecule:

1) comprises a nucleic acid sequence encoding a polypeptide according to any one of a) – t) of claim 56; or

2) comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

3) consists of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ

ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

4) consists of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31, or is a redundant equivalent or fragment thereof; or

5) hybridizes under high stringency conditions with a nucleic acid molecule of any of c1) to c4).

Claim 60 (New): The method of claim 56, comprising:

a) contacting a sample of nucleic acid from tissue of the patient with a nucleic acid primer under stringent conditions that allow the formation of a hybrid complex between a nucleic acid molecule and the primer;

b) contacting a control sample with said primer under the same conditions used in step a);

c) amplifying the sampled nucleic acid; and

d) detecting the level of amplified nucleic acid from both patient and control samples; wherein detection of levels of the amplified nucleic acid in the patient sample that differ significantly from levels of the amplified nucleic acid in the control sample is indicative of disease, wherein the nucleic acid molecule:

1) comprises a nucleic acid sequence encoding a polypeptide according to any one of a) – t) of claim 56; or

2) comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

3) consists of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

4) consists of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31, or is a redundant equivalent or fragment thereof; or

5) hybridizes under high stringency conditions with a nucleic acid molecule of any of d1) to d4).

Claim 61 (New): The method of claim 56, comprising:

a) obtaining a tissue sample from a patient being tested for disease;

b) isolating a nucleic acid molecule from said tissue sample; and

c) diagnosing the patient for disease by detecting the presence of a mutation which is associated with disease in the nucleic acid molecule as an indication of the disease, wherein the nucleic acid molecule:

1) comprises a nucleic acid sequence encoding a polypeptide according to any one of a) – t) of claim 56; or

2) comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

3) consists of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

4) consists of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31, or is a redundant equivalent or fragment thereof; or

5) hybridizes under high stringency conditions with a nucleic acid molecule of any of c1) to c4).

Claim 62 (New): The method of claim 61, further comprising amplifying the nucleic acid molecule to form an amplified product and detecting the presence or absence of a mutation in the amplified product.

Claim 63 (New): The method of claim 61, wherein the presence or absence of the mutation in the patient is detected by contacting said nucleic acid molecule with a nucleic acid probe that hybridizes to said nucleic acid molecule under stringent conditions to form a hybrid double-stranded molecule, the hybrid double-stranded molecule having an unhybridized portion of the nucleic acid probe strand at any portion corresponding to a mutation associated with disease; and detecting the presence or absence of an unhybridized portion of the probe strand as an indication of the presence or absence of a disease-associated mutation.

Claim 64 (New): The method of claim 56, wherein said disease includes one or more of among an autoimmune disease, autoimmune inner ear disease, Labyrinthitis, Ménière disease and Ménière syndrome, Perilymphatic or labyrinthine fistula, Tinnitus, neurodegenerative diseases, amyloidosis, Alzheimer's disease, Parkinson's disease, familial dementia, inflammation (joint pain, swelling, anemia, or septic shock), infectious diseases, parasitic diseases, microbial diseases, bacterial diseases, viral diseases (HIV, HTLV, MuLV, *Streptococcus pneumoniae* and *Ascaris lumbricoides* infections), glomerulonephritis, obesity, diabetes, diabetes mellitus, Schmid metaphyseal chondrodysplasia, corneal endothelial dystrophies, posterior polymorphous corneal dystrophy (PPCD), Fuchs endothelial corneal dystrophy (FECD), atherosclerosis, scurvy, cancer, gastrointestinal stromal tumours, osteosarcoma, chondroblastoma, giant cell tumor, spondylometaphyseal dysplasia Japanese type (SMD), lymphomas (Non-Hodgkin's lymphoma (NHL), follicular lymphomas, Burkitt's lymphoma, mantle cell lymphoma (MCL), multiple myeloma (MM), leukemia (chronic lymphocytic leukemia/small lymphocity lymphoma (CLL/SLL)), diffuse large cell B cell lymphoma (DLCL), B cell hyperplasia, Osteogenesis Imperfecta, Ehlers-Danlos syndrome, susceptibility to dissection of cervical arteries, aortic aneurysm, otospondylomegaepiphyseal dysplasia, hearing loss (deafness), Weissenbacher-Zweymuller syndrome, bone or skeletal disease, late-onset retinal degeneration (L-ORD), age-

related macular degeneration (AMD), blindness, arthritis, rheumatoid arthritis (RA), osteoarthritis, lyme arthritis, juvenile chronic arthritis, spondyloarthropathies, Systemic lupus erythematosus (SLE), Sjögren syndrome, demyelinating diseases of the central and peripheral nervous systems such as multiple sclerosis, idiopathic demyelinating polyneuropathy or Guillain-Barre syndrome, and chronic inflammatory demyelinating polyneuropathy, myasthenia gravis, bronchitis, emphysema, renal failure (glomerulonephritis, vasculitis, nephritis or pyrlonephritis), renal neoplasms, renal cell carcinomas, renal tumor, light chain neuropathy or amyloidosis, acute or chronic immune disease associated with organ transplantation, organ transplant rejection, graft-versus-host disease, Crohn's Disease, systemic sclerosis, idiopathic inflammatory myopathies, systemic vasculitis, sarcoidosis, autoimmune hemolytic anemia, autoimmune thrombocytopenia, thyroiditis, immune-mediated renal disease, hepatobiliary diseases such as infectious autoimmune chronic active hepatitis, primary biliary cirrhosis, granulomatous hepatitis, and sclerosing cholangitis, inflammatory bowel disease, gluten-sensitive enteropathy, and Whipple's disease, autoimmune or immune-mediated skin diseases including bullous skin diseases, erythema multiforme and contact dermatitis, psoriasis, atopic dermatitis, food hypersensitivity and urticaria, immunologic diseases of the lung such as eosinophilic pneumonias, idiopathic pulmonary fibrosis and hypersensitivity pneumonitis, ulcerative colitis, inflammatory bowel disease, allergic diseases such as asthma, allergic rhinitis, sarcoidosis, female infertility, autoimmune thrombocytopenia, autoimmune thyroid disease, Hashimoto's disease, Sjogren's syndrome, ectodermal dysplasia, X-linked hypohidrotic ectodermal dysplasia (HED), inflammatory, ischemic or neoplastic diseases of the adrenal cortex, adrenal tumor, ganglioneuroblastoma, neuroblastoma, phaeochromocytomas, corstisol-producing adrenocortical adenomas, diseases linked to spinocerebellar degeneration, cerebellar diseases, olivopontocerebellar atrophy (OPCA) and/or Shy-Drager syndrome.

Claim 65 (New): The method of claim 51, wherein said method of using a composition of matter comprises the method of monitoring the therapeutic treatment of a disease, comprising monitoring over a period of time the level of expression or activity of a polypeptide, or the level of expression of a nucleic acid molecule, in tissue from said patient, wherein altering said level of expression or activity over the period of time towards a control level is indicative of regression of said disease, wherein

a) the polypeptide is selected from the group consisting of:

1) an amino acid sequence selected from the group consisting of SEQ ID NO:2 (alternative mature INSP163), SEQ ID NO:34 (mature INSP163), SEQ ID NO:4 (INSP163-A), SEQ ID NO:6 (INSP163-B), SEQ ID NO:8 (INSP163-C), SEQ ID NO:10 (INSP163-D), SEQ ID NO:12 (INSP163-E), and SEQ ID NO:14 (INSP163-F);

2) a fragment of said amino acid sequence which functions as a biologically active polypeptide and/or has an antigenic determinant in common with a polypeptide according to 1);

3) a functional equivalent of 1) or 2);

4) the functional equivalent of 3), wherein the functional equivalent is homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, and SEQ ID NO:8, and is a C1q and collagen domain containing polypeptide;

5) the functional equivalent of 3), wherein the functional equivalent is homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, and is a C1q domain containing polypeptide;

6) the functional equivalent of 3), wherein the functional equivalent has greater than 50% sequence identity with an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

7) the functional equivalent of 3), wherein the functional equivalent has greater than 95% sequence identity with the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

8) the functional equivalent of 3), wherein the functional equivalent has greater than 50% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

9) the functional equivalent of 3), wherein the functional equivalent has greater than 95% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

10) the functional equivalent of 3), wherein the functional equivalent exhibits significant structural homology with a polypeptide having the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14;

11) the fragment of 2), wherein the fragment has greater than 50% sequence identity with an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

12) the fragment of 2), wherein the fragment has greater than 95% sequence identity with the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

13) the fragment of 2), wherein the fragment has greater than 50% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

14) the fragment of 2), wherein the fragment has greater than 95% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

15) the fragment of 2), wherein the fragment has an antigenic determinant in common with the polypeptide of 1), and wherein the fragment consists of 7 or more amino acid residues from the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14;

16) a fusion protein comprising any of a1) to a15);

17) the fusion protein of 16), further comprising a histidine tag;

18) the fusion protein of 17), whose sequence is recited in SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:26, SEQ ID NO:36, and SEQ ID NO:28;

19) the polypeptide of any one of 1) to 18), further comprising a signal peptide; and

20) the polypeptide of 19), whose sequence is recited in SEQ ID NO:30 or SEQ ID NO:32; and wherein

b) the nucleic acid molecule:

1) comprises a nucleic acid sequence encoding a polypeptide of any one of a1) to a20); or

2) comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

3) consists of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

4) consists of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31, or is a redundant equivalent or fragment thereof; or

5) hybridizes under high stringency conditions with a nucleic acid molecule of any of b1) to b4).

Claim 66 (New): The method of claim 65, wherein the disease includes one or more of among an autoimmune disease, autoimmune inner ear disease, Labyrinthitis, Ménière disease and Ménière syndrome, Perilymphatic or labyrinthine fistula, Tinnitus, neurodegenerative diseases, amyloidosis, Alzheimer's disease, Parkinson's disease, familial dementia, inflammation (joint pain, swelling, anemia, or septic shock), infectious diseases, parasitic diseases, microbial diseases, bacterial diseases, viral diseases (HIV, HTLV, MuLV, *Streptococcus pneumoniae* and *Ascaris lumbricoides* infections), glomerulonephritis, obesity, diabetes, diabetes mellitus, Schmid metaphyseal chondrodysplasia, corneal endothelial dystrophies, posterior polymorphous corneal dystrophy (PPCD), Fuchs endothelial corneal dystrophy (FECD), atherosclerosis, scurvy, cancer, gastrointestinal stromal tumours, osteosarcoma, chondroblastoma, giant cell tumor, spondylometaphyseal dysplasia Japanese type (SMD), lymphomas (Non-Hodgkin's lymphoma (NHL), follicular lymphomas, Burkitt's lymphoma, mantle cell lymphoma (MCL), multiple myeloma (MM), leukemia (chronic lymphocytic leukemia/small lymphocity lymphoma (CLL/SLL)), diffuse large cell B cell lymphoma (DLCL), B cell hyperplasia, Osteogenesis

Imperfecta, Ehlers-Danlos syndrome, susceptibility to dissection of cervical arteries, aortic aneurysm, otospondylomegaepiphyseal dysplasia, hearing loss (deafness), Weissenbacher-Zweymuller syndrome, bone or skeletal disease, late-onset retinal degeneration (L-ORD), age-related macular degeneration (AMD), blindness, arthritis, rheumatoid arthritis (RA), osteoarthritis, lyme arthritis, juvenile chronic arthritis, spondyloarthropathies, Systemic lupus erythematosus (SLE), Sjögren syndrome, demyelinating diseases of the central and peripheral nervous systems such as multiple sclerosis, idiopathic demyelinating polyneuropathy or Guillain-Barre syndrome, and chronic inflammatory demyelinating polyneuropathy, myasthenia gravis, bronchitis, emphysema, renal failure (glomerulonephritis, vasculitis, nephritis or pyrlonephritis), renal neoplasms, renal cell carcinomas, renal tumor, light chain neuropathy or amyloidosis, acute or chronic immune disease associated with organ transplantation, organ transplant rejection, graft-versus-host disease, Crohn's Disease, systemic sclerosis, idiopathic inflammatory myopathies, systemic vasculitis, sarcoidosis, autoimmune hemolytic anemia, autoimmune thrombocytopenia, thyroiditis, immune-mediated renal disease, hepatobiliary diseases such as infectious autoimmune chronic active hepatitis, primary biliary cirrhosis, granulomatous hepatitis, and sclerosing cholangitis, inflammatory bowel disease, gluten-sensitive enteropathy, and Whipple's disease, autoimmune or immune-mediated skin diseases including bullous skin diseases, erythema multiforme and contact dermatitis, psoriasis, atopic dermatitis, food hypersensitivity and urticaria, immunologic diseases of the lung such as eosinophilic pneumonias, idiopathic pulmonary fibrosis and hypersensitivity pneumonitis, ulcerative colitis, inflammatory bowel disease, allergic diseases such as asthma, allergic rhinitis, sarcoidosis, female infertility, autoimmune thrombocytopenia, autoimmune thyroid disease, Hashimoto's disease, Sjogren's syndrome, ectodermal dysplasia, X-linked hypohidrotic ectodermal dysplasia (HED), inflammatory, ischemic or neoplastic diseases of the adrenal cortex, adrenal tumor, ganglioneuroblastoma, neuroblastoma, phaeochromocytomas, corstisol-producing adrenocortical adenomas, diseases linked to spinocerebellar degeneration, cerebellar diseases, olivopontocerebellar atrophy (OPCA) and/or Shy-Drager syndrome.

Claim 67 (New): The method of claim 51, wherein said method of using a composition of matter comprises the method for identification of a compound that is effective in the treatment and/or diagnosis of a disease, comprising contacting a polypeptide or a nucleic acid molecule of with one or more compounds suspected of possessing binding affinity for said polypeptide or

nucleic acid molecule, and selecting a compound that binds specifically to said nucleic acid molecule or polypeptide, wherein

a) the polypeptide is selected from the group consisting of:

1) an amino acid sequence selected from the group consisting of SEQ ID NO:2 (alternative mature INSP163), SEQ ID NO:34 (mature INSP163), SEQ ID NO:4 (INSP163-A), SEQ ID NO:6 (INSP163-B), SEQ ID NO:8 (INSP163-C), SEQ ID NO:10 (INSP163-D), SEQ ID NO:12 (INSP163-E), and SEQ ID NO:14 (INSP163-F);

2) a fragment of said amino acid sequence which functions as a biologically active polypeptide and/or has an antigenic determinant in common with a polypeptide according to 1);

3) a functional equivalent of 1) or 2);

4) the functional equivalent of 3), wherein the functional equivalent is homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, and SEQ ID NO:8, and is a C1q and collagen domain containing polypeptide;

5) the functional equivalent of 3), wherein the functional equivalent is homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, and is a C1q domain containing polypeptide;

6) the functional equivalent of 3), wherein the functional equivalent has greater than 50% sequence identity with an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

7) the functional equivalent of 3), wherein the functional equivalent has greater than 95% sequence identity with the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

8) the functional equivalent of 3), wherein the functional equivalent has greater than 50% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

9) the functional equivalent of 3), wherein the functional equivalent has greater than 95% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

10) the functional equivalent of 3), wherein the functional equivalent exhibits significant structural homology with a polypeptide having the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14;

11) the fragment of 2), wherein the fragment has greater than 50% sequence identity with an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

12) the fragment of 2), wherein the fragment has greater than 95% sequence identity with the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof;

13) the fragment of 2), wherein the fragment has greater than 50% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

14) the fragment of 2), wherein the fragment has greater than 95% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof;

15) the fragment of 2), wherein the fragment has an antigenic determinant in common with the polypeptide of 1), and wherein the fragment consists of 7 or more amino acid residues from the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14;

16) a fusion protein comprising any of a1) to a15);

17) the fusion protein of 16), further comprising a histidine tag;

18) the fusion protein of 17), whose sequence is recited in SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:26, SEQ ID NO:36, and SEQ ID NO:28;

19) the polypeptide of any one of 1) to 18), further comprising a signal peptide; and

20) the polypeptide of 19), whose sequence is recited in SEQ ID NO:30 or SEQ ID NO:32; and wherein

b) the nucleic acid molecule:

1) comprises a nucleic acid sequence encoding a polypeptide of any one of a1) to a20); or

2) comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

3) consists of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31; or

4) consists of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:33, SEQ ID NO:35, and SEQ ID NO:31, or is a redundant equivalent or fragment thereof; or

5) hybridizes under high stringency conditions with a nucleic acid molecule of any of b1) to b4).

Claim 68 (New): The method of claim 67, wherein the disease includes one or more of among an autoimmune disease, autoimmune inner ear disease, Labyrinthitis, Ménière disease and Ménière syndrome, Perilymphatic or labyrinthine fistula, Tinnitus, neurodegenerative diseases, amyloidosis, Alzheimer's disease, Parkinson's disease, familial dementia, inflammation (joint pain, swelling, anemia, or septic shock), infectious diseases, parasitic diseases, microbial diseases, bacterial diseases, viral diseases (HIV, HTLV, MuLV, *Streptococcus pneumoniae* and *Ascaris lumbricoides* infections), glomerulonephritis, obesity, diabetes, diabetes mellitus, Schmid metaphyseal chondrodysplasia, corneal endothelial dystrophies, posterior polymorphous corneal dystrophy (PPCD), Fuchs endothelial corneal dystrophy (FECD), atherosclerosis, scurvy, cancer, gastrointestinal stromal tumours, osteosarcoma, chondroblastoma, giant cell tumor, spondylometaphyseal dysplasia Japanese type (SMD), lymphomas (Non-Hodgkin's lymphoma

(NHL), follicular lymphomas, Burkitt's lymphoma, mantle cell lymphoma (MCL), multiple myeloma (MM), leukemia (chronic lymphocytic leukemia/small lymphocity lymphoma (CLL/SLL)), diffuse large cell B cell lymphoma (DLCL), B cell hyperplasia, Osteogenesis Imperfecta, Ehlers-Danlos syndrome, susceptibility to dissection of cervical arteries, aortic aneurysm, otospondylomegaepiphyseal dysplasia, hearing loss (deafness), Weissenbacher-Zweymuller syndrome, bone or skeletal disease, late-onset retinal degeneration (L-ORD), age-related macular degeneration (AMD), blindness, arthritis, rheumatoid arthritis (RA), osteoarthritis, lyme arthritis, juvenile chronic arthritis, spondyloarthropathies, Systemic lupus erythematosus (SLE), Sjögren syndrome, demyelinating diseases of the central and peripheral nervous systems such as multiple sclerosis, idiopathic demyelinating polyneuropathy or Guillain-Barre syndrome, and chronic inflammatory demyelinating polyneuropathy, myasthenia gravis, bronchitis, emphysema, renal failure (glomerulonephritis, vasculitis, nephritis or pyrlonephritis), renal neoplasms, renal cell carcinomas, renal tumor, light chain neuropathy or amyloidosis, acute or chronic immune disease associated with organ transplantation, organ transplant rejection, graft-versus-host disease, Crohn's Disease, systemic sclerosis, idiopathic inflammatory myopathies, systemic vasculitis, sarcoidosis, autoimmune hemolytic anemia, autoimmune thrombocytopenia, thyroiditis, immune-mediated renal disease, hepatobiliary diseases such as infectious autoimmune chronic active hepatitis, primary biliary cirrhosis, granulomatous hepatitis, and sclerosing cholangitis, inflammatory bowel disease, gluten-sensitive enteropathy, and Whipple's disease, autoimmune or immune-mediated skin diseases including bullous skin diseases, erythema multiforme and contact dermatitis, psoriasis, atopic dermatitis, food hypersensitivity and urticaria, immunologic diseases of the lung such as eosinophilic pneumonias, idiopathic pulmonary fibrosis and hypersensitivity pneumonitis, ulcerative colitis, inflammatory bowel disease, allergic diseases such as asthma, allergic rhinitis, sarcoidosis, female infertility, autoimmune thrombocytopenia, autoimmune thyroid disease, Hashimoto's disease, Sjogren's syndrome, ectodermal dysplasia, X-linked hypohidrotic ectodermal dysplasia (HED), inflammatory, ischemic or neoplastic diseases of the adrenal cortex, adrenal tumor, ganglioneuroblastoma, neuroblastoma, phaeochromocytomas, corstisol-producing adrenocortical adenomas, diseases linked to spinocerebellar degeneration, cerebellar diseases, olivopontocerebellar atrophy (OPCA) and/or Shy-Drager syndrome.

Claim 69 (New): The method of claim 51, wherein said method of using a composition of matter comprises the method for screening candidate compounds, comprising contacting a non-human transgenic animal with a candidate compound and determining the effect of the compound on the disease of the transgenic animal, wherein the transgenic animal has been transformed to express higher, lower, or absent levels of a polypeptide, wherein the polypeptide:

a) is an amino acid sequence selected from the group consisting of SEQ ID NO:2 (alternative mature INSP163), SEQ ID NO:34 (mature INSP163), SEQ ID NO:4 (INSP163-A), SEQ ID NO:6 (INSP163-B), SEQ ID NO:8 (INSP163-C), SEQ ID NO:10 (INSP163-D), SEQ ID NO:12 (INSP163-E), and SEQ ID NO:14 (INSP163-F); or

b) is a fragment of said amino acid sequence which functions as a biologically active polypeptide and/or has an antigenic determinant in common with a polypeptide according to a); or

c) is a functional equivalent of a) or b); or

d) is the functional equivalent of c), wherein the functional equivalent is homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, and SEQ ID NO:8, and is a C1q and collagen domain containing polypeptide; or

e) is the functional equivalent of c), wherein the functional equivalent is homologous to an amino acid sequence selected from the group consisting of SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, and is a C1q domain containing polypeptide; or

f) is the functional equivalent of c), wherein the functional equivalent has greater than 50% sequence identity with an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof; or

g) is the functional equivalent of c), wherein the functional equivalent has greater than 95% sequence identity with the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof; or

h) is the functional equivalent of c), wherein the functional equivalent has greater than 50% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof; or

i) is the functional equivalent of c), wherein the functional equivalent has greater than 95% sequence identity with the amino acid sequence selected from the group consisting of

SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof; or

j) is the functional equivalent of c), wherein the functional equivalent exhibits significant structural homology with a polypeptide having the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14; or

k) is the fragment of b), wherein the fragment has greater than 50% sequence identity with an amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof; or

l) is the fragment of b), wherein the fragment has greater than 95% sequence identity with the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:34, or with an active fragment thereof; or

m) is the fragment of b), wherein the fragment has greater than 50% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof; or

n) is the fragment of b), wherein the fragment has greater than 95% sequence identity with the amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14, or with an active fragment thereof; or

o) is the fragment of b), wherein the fragment has an antigenic determinant in common with the polypeptide of a), and wherein the fragment consists of 7 or more amino acid residues from the amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:34, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, and SEQ ID NO:14; or

p) is a fusion protein comprising any of a) to o); or

q) is the fusion protein of p), further comprising a histidine tag; or

r) is the fusion protein of q), whose sequence is recited in SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:26, SEQ ID NO:36, and SEQ ID NO:28; or

s) is the polypeptide of any one of a) to r), further comprising a signal peptide; or

t) is the polypeptide of s), whose sequence is recited in SEQ ID NO:30 or SEQ ID NO:32.

Claim 70 (New): The method of claim 69, wherein the disease includes one or more of among an autoimmune disease, autoimmune inner ear disease, Labyrinthitis, Ménière disease and Ménière syndrome, Perilymphatic or labyrinthine fistula, Tinnitus, neurodegenerative diseases, amyloidosis, Alzheimer's disease, Parkinson's disease, familial dementia, inflammation (joint pain, swelling, anemia, or septic shock), infectious diseases, parasitic diseases, microbial diseases, bacterial diseases, viral diseases (HIV, HTLV, MuLV, *Streptococcus pneumoniae* and *Ascaris lumbricoides* infections), glomerulonephritis, obesity, diabetes, diabetes mellitus, Schmid metaphyseal chondrodysplasia, corneal endothelial dystrophies, posterior polymorphous corneal dystrophy (PPCD), Fuchs endothelial corneal dystrophy (FECD), atherosclerosis, scurvy, cancer, gastrointestinal stromal tumours, osteosarcoma, chondroblastoma, giant cell tumor, spondylometaphyseal dysplasia Japanese type (SMD), lymphomas (Non-Hodgkin's lymphoma (NHL), follicular lymphomas, Burkitt's lymphoma, mantle cell lymphoma (MCL), multiple myeloma (MM), leukemia (chronic lymphocytic leukemia/small lymphocity lymphoma (CLL/SLL)), diffuse large cell B cell lymphoma (DLCL), B cell hyperplasia, Osteogenesis Imperfecta, Ehlers-Danlos syndrome, susceptibility to dissection of cervical arteries, aortic aneurysm, otospondylomegaepiphyseal dysplasia, hearing loss (deafness), Weissenbacher-Zweymuller syndrome, bone or skeletal disease, late-onset retinal degeneration (L-ORD), age-related macular degeneration (AMD), blindness, arthritis, rheumatoid arthritis (RA), osteoarthritis, lyme arthritis, juvenile chronic arthritis, spondyloarthropathies, Systemic lupus erythematosus (SLE), Sjögren syndrome, demyelinating diseases of the central and peripheral nervous systems such as multiple sclerosis, idiopathic demyelinating polyneuropathy or Guillain-Barre syndrome, and chronic inflammatory demyelinating polyneuropathy, myasthenia gravis, bronchitis, emphysema, renal failure (glomerulonephritis, vasculitis, nephritis or pyrlonephritis), renal neoplasms, renal cell carcinomas, renal tumor, light chain neuropathy or amyloidosis, acute or chronic immune disease associated with organ transplantation, organ transplant rejection, graft-versus-host disease, Crohn's Disease, systemic sclerosis, idiopathic inflammatory myopathies, systemic vasculitis, sarcoidosis, autoimmune hemolytic anemia, autoimmune thrombocytopenia, thyroiditis, immune-mediated renal disease, hepatobiliary diseases such as infectious autoimmune chronic active hepatitis, primary biliary cirrhosis, granulomatous

hepatitis, and sclerosing cholangitis, inflammatory bowel disease, gluten-sensitive enteropathy, and Whipple's disease, autoimmune or immune-mediated skin diseases including bullous skin diseases, erythema multiforme and contact dermatitis, psoriasis, atopic dermatitis, food hypersensitivity and urticaria, immunologic diseases of the lung such as eosinophilic pneumonias, idiopathic pulmonary fibrosis and hypersensitivity pneumonitis, ulcerative colitis, inflammatory bowel disease, allergic diseases such as asthma, allergic rhinitis, sarcoidosis, female infertility, autoimmune thrombocytopenia, autoimmune thyroid disease, Hashimoto's disease, Sjogren's syndrome, ectodermal dysplasia, X-linked hypohidrotic ectodermal dysplasia (HED), inflammatory, ischemic or neoplastic diseases of the adrenal cortex, adrenal tumor, ganglioneuroblastoma, neuroblastoma, phaeochromocytomas, corstisol-producing adrenocortical adenomas, diseases linked to spinocerebellar degeneration, cerebellar diseases, olivopontocerebellar atrophy (OPCA) and/or Shy-Drager syndrome.

Claim 71 (New): An isolated polypeptide consisting of an amino acid sequence selected from the group consisting of SEQ ID NO:2 (alternative mature INSP163), SEQ ID NO:34 (mature INSP163), SEQ ID NO:4 (INSP163-A), SEQ ID NO:6 (INSP163-B), SEQ ID NO:8 (INSP163-C), SEQ ID NO:10 (INSP163-D), SEQ ID NO:12 (INSP163-E), and SEQ ID NO:14 (INSP163-F).